

X is known

Y is known

\hat{X} is known

\hat{Y} is known

$$\hat{X} = \hat{X}_1 + \hat{X}_2 + \hat{X}_3 + \hat{X}_4$$

$$\hat{Y} = \hat{Y}_1 + \hat{Y}_2 + \hat{Y}_3 + \hat{Y}_4$$

$$X_1 = X_2 = X_3 = X_4 = X$$

$$Y_1 = Y_2 = Y_3 = Y_4 = Y$$

$$\begin{aligned} & \left(X_1 - \hat{X}_1 - 1 \right) \cdot \left(Y_1 - \hat{Y}_1 - 1 \right) + \\ & \left(X_2 - \hat{X}_2 - 1 \right) \cdot \left(Y_2 - \hat{Y}_2 - 1 \right) + \\ & \left(X_3 - \hat{X}_3 - 1 \right) \cdot \left(Y_3 - \hat{Y}_3 - 1 \right) + \\ & \left(X_4 - \hat{X}_4 - 1 \right) \cdot \left(Y_4 - \hat{Y}_4 - 1 \right) = \\ & \sum_i \left(X_i - \hat{X}_i - 1 \right) \cdot \left(Y_i - \hat{Y}_i - 1 \right) = \\ & \sum_i \left(X_i \cdot Y_i - X_i \cdot \hat{Y}_i - X_i \right) + \\ & \sum_i \left(\hat{X}_i \cdot Y_i - \hat{X}_i \cdot \hat{Y}_i - \hat{X}_i \right) + \\ & \sum_i \left(-Y_i + \hat{Y}_i + 1 \right) = \\ & \sum_i \left(X_i \cdot Y_i - X_i - Y_i + 1 \right) + \\ & \sum_i \left(-X_i \cdot \hat{Y}_i + \hat{X}_i \cdot Y_i - \hat{X}_i \cdot \hat{Y}_i - \hat{X}_i + \hat{Y}_i \right) = \\ & \sum_i \left(X_i \cdot Y_i - X_i - Y_i + 1 \right) + \\ & \left(-X_1 \cdot \hat{Y}_1 + \hat{X}_1 \cdot Y_1 - \hat{X}_1 \cdot \hat{Y}_1 - \hat{X}_1 + \hat{Y}_1 \right) + \\ & \left(-X_2 \cdot \hat{Y}_2 + \hat{X}_2 \cdot Y_2 - \hat{X}_2 \cdot \hat{Y}_2 - \hat{X}_2 + \hat{Y}_2 \right) + \\ & \left(-X_3 \cdot \hat{Y}_3 + \hat{X}_3 \cdot Y_3 - \hat{X}_3 \cdot \hat{Y}_3 - \hat{X}_3 + \hat{Y}_3 \right) + \\ & \left(-X_4 \cdot \hat{Y}_4 + \hat{X}_4 \cdot Y_4 - \hat{X}_4 \cdot \hat{Y}_4 - \hat{X}_4 + \hat{Y}_4 \right) = \\ & \sum_i \left(X_i \cdot Y_i - X_i - Y_i + 1 \right) + \\ & \left(-X \cdot \hat{Y}_1 + \hat{X}_1 \cdot Y - \hat{X}_1 \cdot \hat{Y}_1 - \hat{X}_1 + \hat{Y}_1 \right) + \\ & \left(-X \cdot \hat{Y}_2 + \hat{X}_2 \cdot Y - \hat{X}_2 \cdot \hat{Y}_2 - \hat{X}_2 + \hat{Y}_2 \right) + \\ & \left(-X \cdot \hat{Y}_3 + \hat{X}_3 \cdot Y - \hat{X}_3 \cdot \hat{Y}_3 - \hat{X}_3 + \hat{Y}_3 \right) + \\ & \left(-X \cdot \hat{Y}_4 + \hat{X}_4 \cdot Y - \hat{X}_4 \cdot \hat{Y}_4 - \hat{X}_4 + \hat{Y}_4 \right) = \end{aligned}$$

$$\begin{aligned}
& \sum_i (X_i \cdot Y_i - X_i - Y_i + 1) + \\
& - X \cdot \mathring{Y} + Y \cdot \mathring{X} + \\
& \left(-\mathring{X}_1 \cdot \mathring{Y}_1 - \mathring{X}_1 + \mathring{Y}_1 \right) + \\
& \left(-\mathring{X}_2 \cdot \mathring{Y}_2 - \mathring{X}_2 + \mathring{Y}_2 \right) + \\
& \left(-\mathring{X}_3 \cdot \mathring{Y}_3 - \mathring{X}_3 + \mathring{Y}_3 \right) + \\
& \left(-\mathring{X}_4 \cdot \mathring{Y}_4 - \mathring{X}_4 + \mathring{Y}_4 \right) = \\
& \sum_i (X_i \cdot Y_i - X_i - Y_i + 1) + \\
& - X \cdot \mathring{Y} + Y \cdot \mathring{X} + \\
& - \mathring{X} + \mathring{Y} + \\
& - \mathring{X}_1 \cdot \mathring{Y}_1 \\
& - \mathring{X}_2 \cdot \mathring{Y}_2 \\
& - \mathring{X}_3 \cdot \mathring{Y}_3 \\
& - \mathring{X}_4 \cdot \mathring{Y}_4
\end{aligned}$$